



School Starting Age: European Policy and Recent Research

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1. Introduction

Age of starting school and the early years curriculum have been the subject of considerable debate in recent years. Many kinds of influences are apparent in this debate, as we move into a period of increased funding but also increased demand and accountability. Some of the recent developments in pre-school policy include an increasing admission of four-year-olds to reception classes, the introduction of Desirable Learning Outcomes for three and four-year-olds (SCAA, 1997), the introduction of statutory baseline assessment (QCA, 1998) and, most recently, the development of the Foundation Stage, encompassing children aged from three to the end of the reception year (QCA, 2000).

For many years, the UK has been out of step with other countries in expecting children to start school at an early age. Those in favour of keeping the current situation argue that young children are capable of learning the more formal skills inherent in the school curriculum and that starting school early enables children to get a head start in learning. In addition, it is argued that an early start provides an opportunity for children from less advantaged backgrounds to make up the deficit in their academic skills (this is one of the most frequently-cited arguments for starting

schooling early). Early school starting age is also thought to be popular among parents (a survey of parents who moved their children from pre-school playgroups to school at four found that most were happy with their decision, see Blake and Finch, 2000).

On the other hand, concerns have been raised about the appropriateness of a school environment for young children. Does teaching the 3Rs early result in any long-term advantage and is there a danger that young children will miss out on other important experiences or even be damaged by an early start?

The purpose of this paper is to provide an up-to-date picture of school starting ages in Europe and to consider the research evidence that may throw some light on these important issues.

2. Age of starting school in Europe

In most of Europe, children begin compulsory schooling when they are six years old. Table 1 shows the school starting ages in 33 European countries. The countries included in the table are members of one of three groups: the European Union; the European Free Trade Association/the European Economic Area; and the so-called ‘pre-accession’ countries (countries that are preparing for entry to the European Union in 2004).

Table 1	
Compulsory age of starting school in European countries, 2002	
Four	Northern Ireland
Five	England, Malta, Netherlands, Scotland, Wales
Six	Austria, Belgium, Cyprus, Czech Republic, France, Germany, Greece, Hungary, Iceland, Republic of Ireland, Italy, Liechtenstein, Lithuania, Luxembourg, Norway, Portugal, Slovakia, Slovenia, Spain
Seven	Bulgaria, Estonia, Denmark, Finland, Latvia, Poland, Romania, Sweden

Source: European Commission. EURYDICE and EUROSTAT (forthcoming) Figure D1.

The Table shows that over half of the 33 European countries listed have six as the official school starting age. The latest school starting age is seven (in three Scandinavian countries and five Eastern European countries). Three UK countries (England, Wales and Scotland) as well as Malta and the Netherlands, start school at five. Northern Ireland, with a starting age of four, has the earliest compulsory school starting age in Europe.

Of course, compulsory school age only tells part of the story. Many countries have pre-school systems which the majority of children attend. Several countries allow individual children to enter school before compulsory school age or to delay entry, in accordance with parents' wishes, teachers' views and/or the results of pre-school assessments. In several cases, compulsory school age represents the maximum age by which children start school and the majority of children are in school before compulsory school age.

In line with Europe, most countries in the world favour a school starting age of six (Ball, 1994; Bertram and Pascal, 2002; O'Donnell *et al.*, 2002; Woodhead, 1989; West and Varlaam, 1990). So the UK countries' compulsory school starting age of five is low by world standards. In practice, our actual school starting age is earlier still. The official school starting age in England and Wales is the term after a child's fifth birthday. But most English and Welsh children start school when they are four, because many schools admit children to reception class at the beginning of the year in which they become five.

The latest figures from the DfES (DfES, 2002) show that in January 2002, 99 per cent of the English four-year-old population were attending some kind of educational provision, with 59 per cent of four-year-olds in infant classes. Because this calculation is based on a census in January (in relation to the population of children born in the calendar year from January to December, rather than in relation to those born during the academic year from September to August) it is likely that it represents a considerable underestimate of the proportion of English children starting school at four.

Why do children start school early in the UK?

If most countries have a school starting age of six, what are the reasons for the earlier school starting ages adopted in the UK? The term after a child's fifth birthday first became enshrined as the compulsory school starting age in 1870 Education Act. Martin Woodhead points out that there was very little parliamentary debate on this issue at the time, although some MPs clearly favoured six or even seven as the school starting age (Woodhead, 1989). Reasons put forward in support of setting the school starting age at five were related to child protection (i.e. protection from exploitation at home and unhealthy conditions in the streets). There was also a political imperative to appease employers because setting an early starting age enabled an early school *leaving* age to be established, so that children could enter the workforce. Martin Woodhead points out that the school starting age was not decided on the basis of any developmental or educational criteria.

The compulsory school starting age in Northern Ireland was established much more recently, in the Education Reform (Northern Ireland) Order of 1989. The Order revised the definition of compulsory school age so that each child receives a full 12 years of schooling. A child reaching the age of four on or before July 1st must start full-time education in September, meaning that children start school from four years and two months of age (see Holt *et al.*, 1999).

3. UK research into the influence of age and length of schooling on later attainment

Several recent UK studies have addressed the questions about the impact of age and length of schooling on children's academic attainment and progress at school. It is now well known that children who are younger in the year group (the summer-borns) perform less well than their older classmates. But is this difference important, and how long does it persist?

One of the suggested causes of age-related differences in achievement is that, due to age-related school entry policies, summer-borns may start school later and therefore experience less time at school than autumn-borns. Whether age or length of

schooling is the more important factor in later achievement has been examined in a number of recent research studies.

Peter Tymms and his colleagues have analysed information from their Performance Indicators in Primary Schools (PIPS) database. The study includes information from a sample of over a thousand children in 38 schools who were assessed at beginning and end of the reception year (Tymms *et al.*, 1997) and again in the spring of Year 2 (Tymms *et al.*, 2000). The study used assessments of mathematics and reading, and the authors used multilevel modelling to assess both children's attainment and progress.

The study found that progress was strongly related to pre-test scores but there were also large variations related to the class children attended. Age was strongly correlated with attainment. Not surprisingly, children who were older in the year-group attained higher scores in both mathematics and reading attainment. Interestingly, older children also made slightly greater progress in mathematics (but not reading) during the reception year and Years 1–2.

The majority of pupils in the PIPS study started school in September, but 17 per cent started in January and a further two per cent after Easter. The children who started school after September (the 'later starters') were found to be substantially behind the September entrants in their assessments at the end of the reception year, but the difference was 'largely made up' by Year 2.

The relative influence of age and length of schooling has also been addressed in research carried out at the NFER (Sharp and Hutchison, 1997). The study looked at 1995 KS1 results, using a national random sample of over 3,000 children in 114 schools. These children had experienced different lengths of schooling, due to different school entry policies operated by their schools and LEAs (there was a diversity in school entry policies, and termly entry according to birthdate was a popular strategy at the time). The research found that children's attainment at KS1 was significantly related to age/season of birth. Length of schooling was also related to attainment. However, an analysis of length of schooling related to three seasons of

birth showed differential patterns in relation to achievement at KS1. Among the older (autumn-born) children, those with the full reception year did best. But for younger (summer-born) children, those with the full reception year did not do as well as those of the same age with one or two terms less time at school. This relationship held even when other factors (such as sex, and children's eligibility for free school meals) were taken into account.

Similar findings were reported in separate studies carried out by another team at NFER, using 1995 National Curriculum Key Stage 1 results (Schagen and Sainsbury, 1996) and by Sandra Daniels and her colleagues at the University of Leeds (Daniels *et al.*, 2000). The Leeds researchers analysed data from two studies of National Curriculum results in 1991 and 1992, involving over 4,000 children. After taking account of the influence of age and social background factors on results, their study found no evidence of a significant advantage in the KS1 test results among summer-borns who had experienced nine, as opposed to seven terms in school.

A separate study by Hutchison and Sharp (1999) considered the persistence of season of birth effects within three 'cohorts' of pupils in one LEA (over 5,500 pupils in all). The purpose of this investigation was to consider whether age-related differences were large enough to be educationally significant, and to see whether the differences lessened as children matured.

The study obtained raw reading test scores for each cohort at two points in time (when the pupils were aged six and eight; eight and ten; or ten and 12). The results showed that autumn-borns achieved significantly better scores than summer-borns within all three cohorts. Differences were greatest among the six-year-old age-group (ES=0.47). Effect sizes indicated that the differences were educationally significant at all ages apart from age 12, when the difference between the oldest and youngest in the year-group fell below the threshold of 0.25. This study suggests that birthdate differences persist throughout the primary school years.

4. Flexible school starting ages

In the UK, there is a very high correspondence between age-group and school year group. This is because our system uses an age-based, rather than a 'grade-based' system. Children tend to start school with others of the same age-group, and it is rare for individuals either to be 'held back' a year or to be 'promoted' to the next year group. Although there are no official statistics on this, my colleagues and I recently estimated that less than one per cent of pupils in England are either promoted or retained (Sharp *et al.*, 2002). However, 'holding back' and 'promotion' are much more common in other countries.

Sig Prais (Prais, 1997) has argued in favour of more flexibility in school starting ages. He studied children's mathematics attainment in Switzerland and in the London borough of Barking and Dagenham. In Zurich, primary classes contained over one in five children who were a year older than their chronological year group. This was largely the result of delayed entry, based on recommendations by kindergarten teachers. The author gave a mathematics test to 65 Swiss and 200 English nine- and ten-year olds. He found that the Swiss children performed better on this test, although they were younger and had started school a year later. The within-class scores of the Swiss children were also less variable than those of the English children (who showed a greater spread of attainment). He suggests that schools in this country should allow a four-month flexibility in starting ages so that older, more able children could go up a year and younger, less able children could spend longer in pre-school. One of the benefits of this, he argues, would be a reduction in the spread of ability within the class, thus making it easier for teachers to adopt whole-class teaching methods.

Delayed entry to school is also fairly common in the USA. A large-scale US survey (Zill *et al.*, 1997) focused on a sample of American children who were older than expected when starting school. There were two main reasons for this: some of the children were 'retained' as a result of teacher recommendations, often supported by school assessment. Others had been 'held back' from starting school by their parents, because parents believed their child was not ready for school, or that it would give

their child an advantage to be among the oldest, rather than among the youngest in the class.

The figures show that 14 per cent of US children were a year older than their classmates. Five per cent of children had been retained and nine per cent had been held back from starting school. In general these 'delayed' children were younger in the age group and they were predominantly boys. There were some differences in the ethnic composition of the two groups: white children tended to be held back; whereas black and Hispanic children were retained. On the basis of parents' reports of their children's progress in first and second grade, the survey was unable to identify any compelling disadvantages or advantages to the children of delayed entry to school.

A digest of US research on this subject (Katz, 2000), draws together the evidence on the impact of parents holding their children back from starting school. Lilian Katz concludes that it is unclear whether holding back is advantageous to schools or to the children themselves. For example, holding back creates a class with an age-span of more than a year. This has the potential to cause difficulties because older children may feel alienated from younger children and older children may have an 'unfair advantage' in psychomotor and social skills. As far as the teacher is concerned, having a wider age-span to handle *'may also make the class too diverse for a teacher to manage well'*.

Katz found some evidence that children gain a social and academic advantage by being the oldest in the class, at least in the first three years at school. On the other hand, there was evidence that, in the longer term, 'held back' children showed more behavioural problems and used special education services more often than their classmates. Katz suggests that some held back children may have special needs that are initially misdiagnosed as immaturity, and that these children would be better served by direct intervention rather than by delayed entry to school.

5. Research into age of starting school and achievement: international studies

One of the main arguments in favour of starting school early is that it could help to boost children's academic achievement. An obvious place to look for evidence is international comparative studies which include countries with different school starting ages.

What do international comparisons tell us about the effects of school starting age on achievement? The Third International Mathematics and Science Study (TIMSS), revealed that England did comparatively well in science but poorly in mathematics (Harris *et al.*, 1997). More recently, reports on the TIMSS data collected in 1999 (Martin *et al.*, 2000; Mullis *et al.*, 2000) confirmed these findings. The reports also pointed out that there were differences in length of schooling experienced by the samples of 13-year-olds assessed in the 38 participating countries. In 30 countries, children started school at six, so the grade tested was the eighth year of formal schooling. In six countries (Australia, Czech Republic, England, Lithuania, Moldova and New Zealand) at least some pupils were in their ninth year at school. At the other extreme were Finland and the Russian Federation, where some or all of the pupils were in only their seventh year at school.

Students in the top performing countries in mathematics had all experienced eight years of formal schooling (Singapore, Republic of Korea, Chinese Taipei and Hong Kong). This was also the case with the top-performing countries in science (Chinese Taipei, Singapore, Hungary, Japan and the Republic of Korea). This association between starting school age and attainment provides interesting food for thought, but it cannot be taken as a causal link because other factors may be underlying or contributing to it. Unfortunately for our purposes, the TIMSS study did not go on to analyse the relationship between achievement and age of starting school in different countries.

An earlier international study did attempt such an analysis, although UK countries did not take part. The International Association for the Evaluation for Educational Achievement (IEA) measured reading standards in 32 educational systems (Elley,

1992). The study assessed the reading standards of pupils aged nine and 14. Children in most of the countries started school at age six, a few at five and some (mainly those in Scandinavian countries) did not start school until the age of seven. The report includes an analysis of the relationship between age of starting school and reading performance. Against expectations, this showed that the top ten scoring countries had a later starting age (the mean school starting age of these countries was 6.3, compared with a mean of 5.9 in the ten lowest scoring countries). But the top-achieving countries were also the most economically advantaged. When the researchers carried out a further analysis controlling for each country's level of 'development', the trend for older starting ages to be associated with better results was reversed. However, the author points out that the differences were small and that children in 'later starting' countries had largely caught up by the time they reached the age of nine.

A group of researchers decided to explore the influence of school starting age on the relative performance of children in England and Slovenia (Kavkler *et al.*, 2000). Taking as their starting point the results of the TIMSS study for mathematics, they noted that Slovenian 13-year-olds scored well above the international mean, whereas English pupils scored at the international mean in mathematics.

Children in the Slovenian sample started school at age seven (seven was the school starting age until recently when it was changed to six, as shown in Table 1). The researchers used a cross-sectional design to study matched groups of 40 children in two age-groups in each country (total sample of 160 pupils). Pupils were aged between five and eight years. The researchers assessed the pupils' mathematics attainment using two written arithmetic tests. They found that in the youngest age-group, the English pupils scored significantly higher on both tests, but by the age of eight the Slovenian children were scoring at the same level on one test and were significantly out-performing the English children on the other.

The researchers also assessed the mental calculation strategies employed by the children, using oral assessments administered individually to the six highest and lowest scoring pupils in each country. The results of this part of the research

suggested a within-country difference between children of different ability. Lower-achievers in England failed to apply the most successful strategies for solving mental arithmetic problems. The authors conclude that there was no lasting benefit from early school entry in England in terms of mathematical attainment. They point to differences in curricula, pedagogy, parental support and teacher qualifications as possible explanatory factors for the rapid progress demonstrated by Slovenian children of all abilities.

6. Early experiences - later effects

What are the effects of different early childhood curricula? Again, this has been the subject of fierce debate but relatively little research. Much of the evidence originates from studies in the USA. First, a well-known piece of research by Schweinhart and Weikart (1998) followed a small number of disadvantaged children who attended one of three pre-school programmes organised as part of the *Head Start* initiative. A feature of the design was that children were randomly allocated to the three types of programme. The use of random assignment is important because it means that any differences between the groups are likely to result from the programmes, rather than from some selective bias in the sampling.

The programmes studied were *High/Scope* (where children are encouraged to follow a pattern of plan-do-review), *Direct Instruction* (teacher-led, with academic lessons) and *Nursery School* (teachers used themes and children had free choice of activity for much of the time). At first all three groups showed a jump in IQ, followed by a decline to age 10. But the strongest differences emerged in the long-term. At age 23, both the nursery and High Scope groups were doing better on a range of ‘real-life’ measures (such as rates of arrest, emotional problems and suspension from work). The authors suggest that an emphasis on child-initiated activities in these two pre-school programmes developed the children’s sense of social responsibility and their interpersonal skills, and that this had a positive impact in later life.

A debate has been raging in the USA, prompted by the Bush Government’s wish to see *Head Start* emphasise early literacy skills (see Elkind and Whitehurst, 2001). Grover Whitehurst argues in favour of teaching reading skills in pre-school (around

the age of four). He cites his own research into the reading performance of about 600 low-income children. The findings showed that children's ability to demonstrate simple knowledge of print (knowing letter names), phonological awareness (being able to rhyme) and writing (printing their own name), at the end of the pre-school year was a good predictor of reading performance at the end of the first grade (age six). Whitehurst goes on to argue in favour of teaching these skills in pre-school because children are unlikely to obtain knowledge of letters, letter sounds and writing without specific adult intervention: *'If children enter preschool without an interest in print, how is a child-centered program in which the teacher follows their personal interest and supports their play ideas supposed to develop that interest?... Children learn these things because adults take the time and effort to teach them.'* (Elkind and Whitehurst, 2001, p.19).

In the same article, David Elkind argues against early literacy teaching, on the grounds that it is developmentally inappropriate: *'Those calling for academic instruction of the young don't seem to appreciate that math and reading are complex skills acquired in stages related to age. Children will acquire these skills more easily and more soundly if their lessons accord with the developmental sequence that parallels their cognitive development.'* (Elkind and Whitehurst, 2001, p.14).

Elkind cites two studies of children attending different types of pre-school programmes. These studies found that children introduced to formal learning earlier in their lives (around age four or five) did not display any lasting academic advantage. On the other hand, earlier exposure to academic skills appeared to be associated with higher anxiety, lower self-esteem and less motivation towards learning. Elkind comments that, because of the nature of these studies, their findings should be considered to be 'suggestive', rather than conclusive. However, an association between formal teaching, higher anxiety and lower self-esteem has also been found in at least one other study of young children (see Sylva and Nabuco, 1996).

Studies of early reading

A useful overview of research into US pre-school programmes for disadvantaged children is provided in a book by Bob Slavin and his colleagues (Slavin *et al.*, 1989). In relation to the content of effective programmes, they conclude that several different types of curricula may be helpful to young children from disadvantaged backgrounds. Summing up the characteristics of such programmes, the authors state: *‘effective pre-school programs tend to emphasise exploration, language development and play, not academics.’*

Does teaching reading skills at an early age give children an advantage? I have drawn evidence on age of starting reading from two sources: an article by Peter Blatchford and Ian Plewis describing research with a sample of children in London (Blatchford and Plewis, 1990), and an overview of US research on reading by Jeff McQuillan (McQuillan, 1998). In common with Elkind and Whitehurst (2002), both demonstrate that children who can read early do better later.

McQuillan makes the point that children who can read before they start school usually come from homes where books are available and where parents read books. Although parents of these early readers supported their children’s reading they did not ‘push’ them to read, nor did they use most of the formal teaching strategies used in schools. So if early readers do better later, is it not a good idea to teach children to read early on? McQuillan reviews the evidence from a small number of experimental studies of US children taught to read ‘early’ (at age five). These showed that any advantage was short-lived: the later readers had caught up by around age eight. He concludes that early access to reading with supportive adults is a key factor but early interventions to ‘teach’ reading skills are unlikely to combat disadvantage.

Educational experiences in English pre-schools

The Effective Provision for Pre-school Education (EPPE) study is a major, longitudinal project focusing on the attainment and development of children between the ages of three and seven in England. Research began in 1997 and the sample comprised about 3,000 children in 140 settings. The settings were based in five English regions and were chosen to reflect a range of types of provision. Children were assessed on entry to pre-school (at around three years), on entry to school (at

four to five years) and again at ages six and seven. Data were also collected from parents and Centre staff, and by means of an Early Childhood Environment Rating Scale (ECERS) (see Sylva *et al.*, 1999).

A recent publication from the team focused on effective pedagogy in early years settings (Siraj-Blatchford *et al.*, 2002). It aimed to identify the most effective pedagogical strategies in the Foundation Stage to support the development of young children's skills, knowledge and attitudes. Fourteen settings were chosen for study, 12 of which were associated with particularly positive progress in social/behavioural and cognitive outcomes in the EPPE study. The settings represented a range of types of provision (nursery classes, nursery schools, local authority day care, playgroup, private day nursery). Two reception classes were added to the sample, selected on the basis of professional judgement of local authority experts.

The research team carried out intensive case studies, focused on four areas that had been indicated as important by the EPPE research: verbal interactions between adults and staff; differentiation and formative assessment; parental partnership and the home environment; discipline and adult support in talking through conflicts.

Compared with the 'good' settings, the most effective settings were found to encourage 'sustained shared thinking' through interactions between children and others, although this did not appear to take place very frequently in any of the settings. These interactions were associated with staff involvement, 'modelling' (demonstration) and open-ended questioning. In the most effective settings, there was an almost equal balance between child- and adult-initiated activities (except in the reception classes, where the majority of activities were initiated by the staff). Staff qualifications were an important influence on the quality of interactions with children. Staff who were the most highly qualified encouraged children to engage in activities with higher cognitive challenge and used interactions leading to the most sustained shared thinking.

In relation to differentiation and assessment, the study found an association between curriculum differentiation, formative assessment, appropriate cognitive challenge and

sustained shared thinking. Formative assessment was particularly important in meeting children's individual needs, especially providing feedback during activities. The most effective settings shared information between parents and staff and involved parents in decision-making about their child's learning programme. In disadvantaged areas, staff in effective settings were proactive in influencing and supporting parents' role in developing the home environment to support children's learning.

In relation to discipline, staff in the most effective settings encouraged children to be assertive and helped to rationalise and talk through their conflicts (as opposed to staff attempting to distract children involved in conflicts or simply instructing them to stop).

The study concluded that the best settings achieved an equal balance between adult-led and child-initiated activities. These settings provided opportunities for both free play and more focused group activities involving some direct instruction. Cognitive outcomes were directly related to the quantity and quality of adult planned and initiated group work. In the excellent settings, adults extended about half the child-initiated activities.

Finally, two smaller-scale studies in England have provided further evidence on the effects of attending different kinds of pre-school (Jowett and Sylva, 1986; McInnes, 2002). Sandra Jowett and Kathy Sylva studied 90 children attending schools in working-class areas. They observed two matched groups of children who had previously attended either a local authority nursery or a poorly-resourced playgroup. Significant differences were found favouring nursery attendees, including more involvement in play of high cognitive challenge and more persistence in face of difficulty. Playgroup children appeared more teacher-dependent: they stayed near the teacher and were more likely to ask for teacher's help if in difficulty, rather than trying to find alternative strategies for themselves.

A recent small-scale study by Karen McInnes (2002) compared the educational experiences of four-year-olds in nursery and reception classes, focusing on experience in literacy and numeracy in particular. The researcher observed 23 pupils

in four settings (nursery school, nursery class in an infant school, and reception classes in two schools). The results indicated that children in the nursery school showed the highest levels of ‘involvement’. McInnes concluded that children in the nursery school experienced a better balance between child-initiated and adult-initiated activities than those in the other three settings, and that this may have affected the observed differences in their ‘involvement’ levels.

7. Discussion

This paper set out to examine the research evidence concerning age of starting school. It is clear that the UK is out of step with other countries in introducing children to school and thereby to more ‘formal’ learning early in life. There are several elements of a child’s experience in school that distinguishes it from a child’s experiences in most pre-school environments, even educationally-oriented pre-school provision (see, for example, Bertram and Pascal, 2002; Sutherland, 2000). First, reception class teachers tend to take a more didactic role, and children spend proportionately less time on tasks of their own choosing. Second, children are less physically active, spend less time exploring their environment and more time sitting still. This may result from both the teacher’s pedagogical approach and a lack of free access to outdoor play facilities in schools. A recent study of schools’ ability to provide for the Foundation Stage found that almost half of the headteachers interviewed described their outdoor learning facilities for reception children as ‘inadequate’ (Quick *et al.*, 2002). Third, the curriculum is more subject-related and places an emphasis on the acquisition of abstract and symbolic aspects of number, reading and writing (as opposed to an emphasis on play and the development of conceptual, memory, oral and social skills). Fourth, adult-child ratios are generally higher in pre-school settings, and teaching staff in pre-school usually have qualifications that are specifically focused on the needs of young children.

The arguments in favour of children being taught academic skills earlier do not appear to be borne out by the evidence. Because some children demonstrate reading and number awareness at an early age, and this is correlated with later achievement, some commentators have taken this as an argument in favour of teaching all children literacy and numeracy skills at an early age. There are however, at least two

explanations for the correlation noted above. First, it could be that the children who displayed these skills early in life were precocious/gifted (in other words, the early ability was a reflection, rather than a cause of their interests and natural abilities). Second, it is likely that these children grew up in homes with access to books and with adults who encouraged their children to develop their literacy and numeracy skills.

While it does appear to be possible for schools to teach young children basic reading, writing and numeracy skills, there appears to be no lasting benefit to such learning. If assessed at an early age, children who have been taught these skills are likely to perform better than children of the same age who have not. However, the evidence consistently shows that this early advantage is not sustained in the longer term. Children who are taught these skills up to three years later seem to acquire them rapidly, and thereafter perform as well as or better than children with an early start. There is also little evidence that an early start in school compensates children for lower achievement that may be associated with deficiencies in their home learning environment.

Would a more flexible approach to school starting age help? This question appears to have arisen in response to the concern that some children may not be ready for formal learning at four. There is also the suggestion that reducing the ability range in the class will help the teacher to use whole class teaching approaches. The evidence from the USA suggests that there is no lasting advantage (or disadvantage) to children who enter school a year later than their peer group. And although holding back may reduce the ability range in the class, it simultaneously increases the age-range, which poses other challenges to the social fabric of the class. Two other issues are raised here: first, there may be an issue of equality of opportunity if children who start school later are over-representative of certain groups (such as children younger in the age-group, boys, children from ethnic minority backgrounds). Second there is a possibility that a child's lack of school 'readiness' may be caused by special needs that are better addressed in other ways. Nevertheless, there is certainly a challenge in schools' ability to meet the diverse learning needs of individual young children, who may be at very different stages of development.

As far as the types of experiences offered in early childhood settings are concerned, there does appear to be some consensus from the research evidence, although the effects of early childhood education are greatly influenced by the consistency of children's subsequent learning opportunities at home and at school. Young children (aged five and under) seem to do best when they have opportunities to socialise, make their own choices and take responsibility for their own learning. This can be combined on a 50:50 basis with a more adult-led approach (Siraj-Blatchford *et al.*, 2002). Qualified staff are best placed to extend children's learning appropriately.

It appears possible for pre-schools to instil resilience and a 'can do' attitude, which serves children (especially those from disadvantaged backgrounds) well all their lives. Emphasis on spoken language and understanding of basic concepts, such as time and number, are recommended, as are access to books and to people who read to them, but not 'formal', academic teaching.

8. Summary and conclusions

The main findings from this review are set out below.

Age of starting school

- Most European countries have a compulsory school starting age of six.
- Six is also the most common school starting age world-wide.
- The UK has a younger school starting age (five) and many children start school at four. Northern Ireland has the lowest compulsory school starting age (from four years and two months).

Flexible school starting ages

- The UK uses an age-based system of school entry and tends to keep children in year groups with others of the same age.
- Delayed entry to school is more common in other countries.
- Children who enter school later because of teacher recommendation tend to be younger in the year-group, boys and children from ethnic minority backgrounds.
- USA research points out that delayed entry due to parental choice increases the age-spread in the class, which may cause difficulties for teachers. There is no evidence that delaying entry has any strong advantage or disadvantage for the children concerned.

The impact of school entry age on academic achievement

- There is a lack of conclusive evidence concerning the benefits of starting school at different ages.
- The best available evidence suggests that teaching more formal skills early (in school) gives children an initial academic advantage, but that this advantage is not sustained in the longer term.
- There are some suggestions that an early introduction to a formal curriculum may increase anxiety and have a negative impact on children's self esteem and motivation to learn. The long-term impact of different early childhood curricula would seem to be an important topic for further research.

Research into the impact of season of birth and length of infant schooling

- Research conducted in England and Wales shows that children who are older in the year group (autumn-born) achieve better test results than their summer-born classmates.
- This appears to be largely a function of age/maturity when taking the assessments, rather than as a result of differences in length of schooling.
- Within-year group differences appear to have an educationally significant impact on attainment throughout the primary phase.

International studies of achievement

- Top-performing countries in the TIMSS study had a school starting age of six, as did those participating in the earlier IEA study of reading attainment. However, this cannot be taken as evidence of a causal link between later starting and better achievement, because many factors could contribute to the higher achievement demonstrated in these countries.
- One small-scale study has focused on mathematics attainment among a group of children in England and Slovenia. This suggested that the much earlier school starting age in England did not provide any lasting advantages in terms of mathematical attainment.

The impact of different curriculum approaches in the early years

- A small-scale study in the USA suggested that disadvantaged children experiencing three different pre-school curricula all made initial gains, but there were longer-term differences in 'real-life' measures. Children who had experienced a more academic, teacher-led curriculum at age four were experiencing more problems as adults than those who had experienced a play-based curriculum with more opportunities to choose their own learning activities.
- A longitudinal study in England (linked with the EPPE project) found that higher than expected progress in the early years was associated with 'sustained shared thinking' between pupils and adults. This in turn was linked with an equal balance between child- and adult-initiated activities, and adults who used open-ended questioning to extend children's thinking. Staff who were qualified encouraged children to engage in activities with high cognitive challenge. Other

key features of effective settings were: differentiation and feedback; adult support for children in talking through conflict situations; and parental partnership centred on developing the educational environment at home. The study concluded that the most effective settings provide an equal balance between a teacher-directed approach and an approach in which children are provided with free access to a range of learning environments in which adults support children's learning.

- Two small-scale English studies have suggested that child-initiated activities may be important in contributing to children's greater task-involvement, independence and persistence.
- A US review of pre-school programmes for disadvantaged children concluded that the most effective curricula tended to emphasise exploration, language development and play.
- Children from homes where they are exposed to books, and to adults who enjoy reading, tend to read earlier. Children who can read early do better later, but formal teaching of reading skills at an early age does not appear to give children a lasting advantage.

The issues posed at the outset are apparently simple, but are difficult to answer from the research evidence. As far as I am aware, there is no definitive evidence from randomised control trials charting the progress of children who started school earlier or later (and it would be difficult to envisage parents agreeing to participate in such a trial). International comparisons are indirect evidence at best, because they involve such different cultures and educational systems. What we can say is that a later start does not appear to hold back children's progress (although it is important not to forget the important contribution made by children's experiences at home and in pre-school). Certainly, there would appear to be no compelling educational rationale for a statutory school age of five or for the practice of admitting four-year-olds to school reception classes.

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